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wider than of the trace, leaving the remainder of the metal away from the indentation to act as a spacer separating the plates. The indented area is referred to as a "channel". See FIG. 4 for orthogonal view and FIG. 2 for end-on view.

Claim 2 (Original)

The PCB of claim 1 fabricated by removal of material in the metal plate by etching, milling, punching or shaping or any other method

Claim 3 (original)

The PCB of claim 1 fabricated by adding material to the metal plate using but not limited to plating, welding, electro-plating, painting, spraying, or assembly or any other metal build-up process.

Claim 4 (currently amended)

Referring to Figure 3, The PCB of claim 1 fabricated by assembling a combining ation of a top plate and a top spacer plate to form the equivalent top metal plates of claim 1, Figure 2, and combining a bottom plate and bottom spacer to form the equivalent bottom metal plate of claim 1 with one or two plates is essentially electrically continuous over the assembly, and one or two metal spacing plate with metal removed from the trace area to keep from shorting the signal. The metal spacing plate(s) may be made by etching, milling punching or any other process.

Claim 5 (withdrawn)

The PCB of claim 1 fabricated by shaping of material in the metal plate by ~~but not~~ limited to stamping, drawing or other process. The ridges and valleys of one side can become the valleys and ridges of the opposite side, for the next layer stacked.

Claim 6 (withdrawn). The PCB of claim 1 fabricated by casting, molding, electro-forming or any similar process to make the metal plate in the desired shape. The ridges and valleys of one side can become the valleys and ridges of the opposite side, for the next layer stacked.

Claim 7 (original)

The PCB of claim 1 with dielectric layer strong enough to support the trace between the spacing layers but thin enough to minimize the effect it will have on the composite dielectric constant including the air between the trace and the external conductive planes.

Claim 8 (withdrawn)

The PCB of claim 1 wherein several traces may be used on the same dielectric layer in individual channels.

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Claim 9 (withdrawn)

The PCB of claim 1 wherein several traces may be placed within a single channel.

Claim 10 (withdrawn)

The PCB of claim 1 wherein two traces may be placed to operate as a differential pair of signals.

Claim 11.(withdrawn)

The PCB of claim 1 wherein Multiple layers are stacked so that many traces can be routed in the same PCB.

Claim12 (withdrawn)

The single metal plate of claim 1 may have metal indentation on the opposite surface so that the plate serves two different signal traces, one above and one below.

Claim 13(original)

The PCB of claim 1 will be 4 or 5 mils thick spacers, conductive layers will be about 1 mil thick, copper trace will be about 1 mils thick and the overall section will be about 12 mils.

Claim 14.(original)

The PCB of claim 1 wherein channels in the metal plates noted above may be extended to the edges of the PCB or to holes to the surface to provide for air escape or inflow if temperature or altitude changes might cause compression or expansion of trapped air and de-lamination.

Claim15 (withdrawn)

The PCB of claim 1 wherein attachment of vias for traces of claim 1 may be by (1) removing the dielectric layer with signal trace,(2) drilling a hole larger than the via in the metal plates and spacers, (3) forcing dielectric material into the drill hole in the metal plates individually, (4) laminating the layers together, (5) drilling a smaller via hole through the dielectric material and the pads on the signal trace and (6) plating to connect the via to the signal trace as is normally done.

Claim 16 (withdrawn)

The PCB of claim 1 wherein attachment of vias of claim 1 may be done using several techniques Including the insertion of dielectric spacers or metal pins to electrically connect and to position the connection via.

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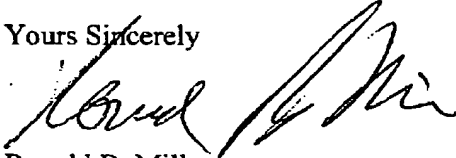


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Claim 17. (original)

The PCB of claim 1 wherein laminating metal to metal may use an adhesive coating or an adhesive sheet. The adhesive will have no effect on electrical high speed performance because the thin dielectric of the adhesive with wide metal plates forms a high frequency capacitive short from top to bottom plates.

Yours Sincerely



Ronald B. Miller

7721 Sunset Avenue, Newark, California 94560

510.793.4744 Fax 510.742.6686

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